

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA25 | Castle Bromwich and Bromford

Baseline (SV-002-025)

Sound, noise and vibration

November 2013

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Department
for Transport

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Appendix SV-002-025

Environmental topic:	Sound, noise and vibration	SV
Appendix name:	Baseline	002
Community forum area:	Castle Bromwich and Bromford	025

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1 Introduction

1.1 Structure of the sound, noise and vibration appendices

- 1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these is an introduction to the relevant policy and methodology (Appendix SV-001-000). This relates to the sound, noise and vibration assessment for all community forum areas.
- 1.1.2 For the Castle Bromwich and Bromford area, the other three sections are as follows:
- baseline sound, noise and vibration (Appendix SV-002-025) (this appendix);
 - construction sound, noise and vibration (Appendix SV-003-025); and
 - operational sound, noise and vibration (Appendix SV-004-025).
- 1.1.3 Maps referred to within this appendix are contained in the Volume 5: Map book Sound, noise and vibration.
- 1.1.4 This appendix includes details of the existing and future baseline sound environment within the area. It provides details of measurements and any other data collection which has been undertaken in order to obtain existing and future baseline sound levels.

1.2 Existing acoustic environment

- 1.2.1 The Castle Bromwich and Bromford area spans the M6 corridor. The M6 in this area is one of the busiest stretches of motorway in Europe and is elevated for much of its length in the CFA. Running close by the M6 is a busy rail route from Birmingham running east from the city and onward to Derby and the north-east and Leicester and the east. An additional freight only line from the north merges with the main line just east of Castle Vale. To the north of the M6/rail corridor the west of the area is an extensive area of industrial and commercial premises including a large car factory (Jaguar), an oil storage and distribution depot, a shopping complex and a variety of other industrial and commercial activities. Some of the commercial properties on Tameside Drive are significant sound sources contributing to the sound climate at residential properties immediately north of the railway line in Castle Vale.
- 1.2.2 To the east of the extensive residential area of Castle Vale, are more commercial premises and open land. To the south of the M6 and railway corridor the areas of Bromford in the west and Castle Bromwich in the east are largely residential although the Castle Bromwich Business Park lies north of the M6 and south of the railway where the two diverge south of Castle Vale. The A452 runs just to the south of the M6 in the east of the area before turning north to the west of Castle Vale to become the A452 Chester Road. The A47 Fort Parkway runs south west from the A452 Chester Road, to the north of the M6.
- 1.2.3 This area lies approximately 6 km to the north-west of Birmingham International Airport and under its flightpath. This area is therefore characterised by the sounds of road traffic from the motorway and other major roads, railways, aircraft and industrial and commercial premises.

2 Scope, assumptions and limitations

2.1 Sound and vibration sensitive receptors

2.1.1 Within the Castle Bromwich and Bromford area, 156 assessment locations have been defined to represent all identified sound and vibration sensitive receptors within the spatial scope. The assessment locations are shown on the detailed maps in map series SV-03 and SV-04 Volume 5: Map book Sound, noise and vibration. Within this area, the following types of sound and vibration sensitive receptors have been identified:

- residential areas;
- education facilities;
- community centres and meeting facilities;
- places of worship; and
- healthcare facilities.

2.2 Local engagement

2.2.1 Discussions have been held with representatives of Solihull Metropolitan Borough Council (SMBC) and Birmingham City Council (BCC) regarding the approach which has been taken to baseline monitoring within this area, the identification of noise and vibration sensitive receptors, the selection of assessment location and baseline sound levels at these assessment locations.

2.2.2 Changes suggested during these meetings have influenced the assessment locations used and the monitoring undertaken and reported in this document.

2.2.3 Representatives of SMBC have also attended baseline sound measurements in this area and witnessed the measurement procedures used.

2.2.4 Local engagement through community forum meetings has also provided the opportunity for local groups to suggest appropriate baseline sound monitoring locations. Any suggestions received from these groups have been considered and influenced the monitoring undertaken and reported in this document.

2.3 Existing baseline sound monitoring locations

2.3.1 Maps showing the baseline sound monitoring locations and assessment locations within this area are included in map series SV-03 and SV-04 Volume 5: Map book Sound, noise and vibration.

2.3.2 Throughout this area, there are a small number of non-residential receptors, where land access and/or secure monitoring locations have not been available to allow for monitoring of baseline sound levels. At these locations, baseline levels have been based on values obtained from the Birmingham Noise Map.¹

¹ Birmingham City Council (BCC) (2005). *Birmingham Noise Map*. BCC. Electronic data provided by and used with permission of Birmingham City Council.

3 Environmental baseline

3.1 Existing baseline data collection methodology

- 3.1.1 The overall approach to baseline data collection for sound noise and vibration is described in Volume 5: Appendix SV-001-000.
- 3.1.2 Over the Castle Bromwich and Bromford area, a large number of baseline sound measurements have been undertaken. These have been classified as follows:
- long term measurements – unattended measurements of several days duration;
 - medium term measurements – attended measurements of several hours duration (generally repeated at different times of day); and
 - short term measurements – attended measurements typically of 30 minutes duration (generally repeated at different times of day).
- 3.1.3 A total of 58 baseline sound monitoring locations have been used within this area, with further measurements from just outside of the area also being used to provide information on baseline sound levels.
- 3.1.4 For the eastern part of Castle Bromwich, between Parkfield Drive and the motorway, baseline measurements were based on a long-term, seven day measurement location in the garden of a property close to the A452 and M6 corridor. A number of satellite short term measurements on publicly accessible land were undertaken both day and night at locations throughout the area generally parallel to the motorway corridor. These were representative of local receptors and simultaneous with the longer-term measurement to allow good correlation between the site measurements to be achieved.
- 3.1.5 For the western end of Castle Bromwich in the area of Kingsleigh Drive two short term measurement sites were used. Monitoring was also undertaken at a third short term measurement location in Tameside Drive on the Castle Bromwich Business Park close to a residential Travellers Site. Monitoring was undertaken day and night at all three sites.
- 3.1.6 The Bromford residential area, immediately south of the M6, has been divided for baseline purposes into two sections, East (between Sandown Road and the A452) and West (between Sandown Road and Bromford Road). In the east section attended medium term sound measurements were undertaken at three locations over a period of two to three hours (during each of daytime and night time). Short term monitoring was carried out at a further five locations simultaneously with the medium term measurements. The short term measurements were again carried out both at day and at night. The measurements were undertaken on public access land and close to sensitive receptors.
- 3.1.7 In the west section of Bromford attended medium term measurements were undertaken at two locations over a period of two to three hours. Short term monitoring was carried out at a further five locations simultaneously with these. Monitoring was undertaken day and night at all three sites. These measurement locations were on public access land and representative of nearby sensitive receptors.
- 3.1.8 Baseline in the area between Bromford Road and A4040 Bromford Lane has been assessed with a long term, seven day, monitoring location in the garden of a residential

property on Bromford Road close to A4040 Bromford Lane. Five satellite short term locations on publicly accessible land were chosen to be representative of sensitive properties in this area. These short term measurements at these satellite locations were undertaken both day and night simultaneous to the long-term measurements. This long term location was also used for assessments on the other side of A4040 Bromford Lane which fall into the neighbouring CFA.

- 3.1.9 Sound measurements were undertaken in the Castle Vale area in two distinct sections. The south section represented the residential area between the railway line and Tangmere Drive/Farnborough Road. The north section represented the residential area to the north of these roads. Sound measurement locations were on public access land and were chosen to be representative of sensitive receptors.
- 3.1.10 In the south section attended monitoring was undertaken at three locations over a period of two to three hours (during each of daytime and night time). A further fifteen locations were chosen to be representative of sensitive receptors in the area. Short-term monitoring was undertaken at these fifteen locations, each simultaneously with one of the original three measurements, covering both day and night periods. A single long term, seven day, measurement on the southern edge of Castle Vale has been used to provide a 24-hour time history of sound levels for this area in calculating average baseline sound levels over the day and night time periods.
- 3.1.11 In the north section six short-term monitoring locations were used and were monitored simultaneously in pairs covering both day and night periods. The long term, seven day, measurement on the southern edge of Castle Vale has again been used to provide a 24-hour time history of sound levels for this area in calculating average baseline sound levels over the day and night time periods.
- 3.1.12 Throughout this area, at a small number of non-residential receptors, where land access and/or secure monitoring locations have not been available to allow for monitoring, baseline levels have been based on values obtained from the Birmingham Noise Map². In order to validate that the data obtained from this source is applicable, comparisons have been undertaken at nearby locations and between values from the Birmingham Noise Map and measured existing sound levels. These comparisons have confirmed that in the areas of interest the predicted noise levels from the Birmingham Noise Map remain a good estimate of existing baseline sound levels.

3.2 Existing baseline sound levels

- 3.2.1 From the measurements described previously, baseline sound levels have been ascertained for each assessment location within this area. These levels are presented in terms of the following key sound indicators:
- For the operational sound assessment:
 - $L_{pAeq,16hr\text{ weekday}}$ daytime (07:00-23:00) sound pressure level;
 - $L_{pAeq,8hr\text{ weekday}}$ night-time (23:00-07:00) sound pressure level;

² Birmingham City Council (BCC) (2005). *Birmingham Noise Map*. BCC. Electronic data provided by and used with permission of Birmingham City Council.

- arithmetic average of $L_{pAFmax,5min}$ night-time sound pressure level; and
- highest $L_{pAFmax,5min}$ night-time sound pressure level.
- For the construction sound assessment:
 - Daytime L_{pAeq} sound pressure level (Monday to Friday 07:00-19:00; Saturday 07:00-13:00);
 - Evening / weekend L_{pAeq} sound pressure level (Monday to Friday 19:00-23:00; Saturday 13:00-23:00; Sunday 07:00-23:00); and
 - Night-time L_{pAeq} sound pressure level (Monday to Sunday 23:00-07:00).

3.2.2 These values are presented in Table 1. The data source coding included within this table details how the baseline sound levels allocated to each assessment location have been derived. This coding is summarised in Table 2 and explained in detail in Volume 5: Appendix SV-001-000.

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Table 1: Existing baseline sound levels³

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
66479	Hurricane Park, Heartlands Parkway, Birmingham	Birmingham Noise Map and WM2907	71.0	65.0	74.2	78.6	71.0	71.0	65.0	6,A,i,c
66897	Twycross Grove, Birmingham	WM2713 and WM0506	56.0	54.8	58.8	74.9	56.3	54.8	54.8	Day 2,A,i,b; Night 4,A,i,c
67066	Fairholme Road, Birmingham	WM2712	65.1	57.3	69.4	73.6	65.3	63.9	57.3	2,A,ii,b
71180	Gravelly Industrial Park, Birmingham	Birmingham Noise Map and WM2907	81.0	73.0	74.2	78.6	81.0	81.0	73.0	6,A,i,c
73644	York Drive, Birmingham	WM0503	65.0	58.9	70.1	81.8	65.6	62.7	58.9	4,A,i,c
73663	Bromford Drive, Birmingham	WM0503	65.0	58.9	70.1	81.8	65.6	62.7	58.9	4,A,ii,c
73708	Newmarket Way, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,ii,c
74835	Farnhurst Road, Birmingham	WM2712	65.1	57.3	69.4	73.6	65.3	63.9	57.3	2,A,ii,b
74965	Farnhurst Road, Birmingham	WM2709	66.0	59.1	68.1	73.6	66.2	64.8	59.1	2,A,ii,b

³ Note that for locations where data have been obtained from the Birmingham Noise Map no L_{pAFmax} noise data is available.

⁴ Table 2 provides a data source coding key.

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
75034	Fairholme Road, Birmingham	WM2711	64.8	55.3	68.8	78.9	65.1	63.6	55.3	2,A,ii,b
75260	Bromford Road, Birmingham	WM2701	59.7	54.0	63.5	85.2	60.0	58.5	54.0	1,A,i,a
75421	Farnhurst Road, Birmingham	WM2711	64.8	55.3	68.8	78.9	65.1	63.6	55.3	2,A,i,b
76387	Peak Croft, Birmingham	WM2713 and WM0506	56.0	54.8	58.8	74.9	56.3	54.8	54.8	Day 2,A,ii,b; Night 4,A,ii,c
76711	Kempton Park Road, Birmingham	WM0507	62.3	59.0	64.8	75.1	62.9	60.0	59.0	4,A,i,c
76777	Bromford Drive, Birmingham	WM0508	65.1	56.9	64.0	69.0	65.7	62.8	56.9	4,A,i,c
76821	Sundew Croft, Birmingham	WM0508	65.1	56.9	64.0	69.0	65.7	62.8	56.9	4,A,ii,c
76985	Goodwood Close, Birmingham	WM0508	65.1	56.9	64.0	69.0	65.7	62.8	56.9	4,A,i,c
77075	Cheltenham Drive, Birmingham	WM0407	57.1	57.6	62.0	68.2	57.7	54.8	57.6	4,A,ii,c
77112	Sandown Road, Birmingham	WM0509	61.8	56.8	61.6	63.7	62.4	59.5	56.8	4,A,ii,c
77186	Ayrshire Close, Birmingham	WM0509	61.8	56.8	61.6	63.7	62.4	59.5	56.8	4,A,ii,c
77233	Chillinghome Road, Birmingham	WM0509	61.8	56.8	61.6	63.7	62.4	59.5	56.8	4,A,ii,c
77246	Ayrshire Close, Birmingham	WM0509	61.8	56.8	61.6	63.7	62.4	59.5	56.8	4,A,ii,c
77283	Bromford Drive, Birmingham	WM0508	65.1	56.9	64.0	69.0	65.7	62.8	56.9	4,A,ii,c

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
77296	Chillinghome Road, Birmingham	WM0406	62.0	63.4	68.9	73.0	62.6	59.7	63.4	4,A,ii,c
77300	Chillinghome Road, Birmingham	WM0406	62.0	63.4	68.9	73.0	62.6	59.7	63.4	4,A,ii,c
77337	Chillinghome Road, Birmingham	WM0401	62.6	63.4	68.9	73.0	63.2	60.3	63.4	4,A,i,c
77379	Chillinghome Road, Birmingham	WM0401	62.6	63.4	68.9	73.0	63.2	60.3	63.4	4,A,ii,c
77460	Towcester Croft, Birmingham	WM0407	57.1	57.6	62.0	68.2	57.7	54.8	57.6	4,A,ii,c
77625	Bromford Drive, Birmingham	WM0501	66.0	61.3	71.3	78.8	66.6	63.7	61.3	4,A,ii,c
77640	Bromford Drive, Birmingham	WM0501	66.0	61.3	71.3	78.8	66.6	63.7	61.3	4,A,ii,c
77652	Bromford Drive, Birmingham	WM0502	66.4	63.4	69.8	74.2	67.0	64.1	63.4	4,A,ii,c
77677	Haydock Close, Birmingham	WM0506	60.0	54.8	58.8	74.9	60.6	57.7	54.8	4,A,ii,c
77728	Bromford Drive, Birmingham	WM0502	66.4	63.4	69.8	74.2	67.0	64.1	63.4	4,A,ii,c
77747	Bromford Drive, Birmingham	WM0502	66.4	63.4	69.8	74.2	67.0	64.1	63.4	4,A,ii,c
77756	Haydock Close, Birmingham	WM0505	61.6	54.8	58.8	74.9	62.2	59.3	54.8	4,A,ii,c
77841	Bromford Drive, Birmingham	WM0502	66.4	63.4	69.8	74.2	67.0	64.1	63.4	4,A,ii,c
77869	Bromford Drive, Birmingham	WM0502	66.4	63.4	69.8	74.2	67.0	64.1	63.4	4,A,ii,c
77894	Fishpool Close, Birmingham	WM0507	62.3	59.0	64.8	75.1	62.9	60.0	59.0	4,A,ii,c
77946	Doncaster Way, Birmingham	WM0507	62.3	59.0	64.8	75.1	62.9	60.0	59.0	4,A,ii,c

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			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
77973	Wincanton Croft, Birmingham	WM0507	62.3	59.0	64.8	75.1	62.9	60.0	59.0	4,A,ii,c
78176	Reynoldstown Road, Birmingham	WM0505	61.6	54.8	58.8	74.9	62.2	59.3	54.8	4,A,ii,c
78244	Redcar Croft, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,ii,c
78267	Reynoldstown Road, Birmingham	WM0501	66.0	61.3	71.3	78.8	66.6	63.7	61.3	4,A,i,c
78287	Sprig Croft, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,ii,c
78392	Thirsk Croft, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,ii,c
78518	Tulyar Close, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,i,c
79325	Bromford Road, Birmingham	WM2713 and WM0506	56.0	54.8	58.8	74.9	56.3	54.8	54.8	Day 2,A,ii,b; Night 4,A,ii,c
79332	Bromford Road, Birmingham	WM2713 and WM0506	56.0	54.8	58.8	74.9	56.3	54.8	54.8	Day 2,A,ii,b; Night 4,A,ii,c
79448	Pan Croft, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,ii,c
80049	Asholme Close, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,ii,c
80057	Asholme Close, Birmingham	WM0504	60.3	54.8	58.8	74.9	60.9	58.0	54.8	4,A,ii,c
80128	Riddfield Road, Birmingham	WM0408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c

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80329	Berrandale Road, Birmingham	WMo408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c
80391	Kempson Road, Birmingham	WMo408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c
80850	Chillinghome Road, Birmingham	WMo401	62.6	63.4	68.9	73.0	63.2	60.3	63.4	4,A,ii,c
80870	Larkspur Croft, Birmingham	WMo407	57.1	57.6	62.0	68.2	57.7	54.8	57.6	4,A,ii,c
80912	Kilmore Croft, Birmingham	WMo407	57.1	57.6	62.0	68.2	57.7	54.8	57.6	4,A,i,c
80941	Vanguard Close, Birmingham	WMo405	59.0	57.6	63.4	70.0	59.6	56.7	57.6	4,A,ii,c
81112	Bromford Drive, Birmingham	WMo405	59.0	57.6	63.4	70.0	59.6	56.7	57.6	4,A,i,c
81273	Riddfield Road, Birmingham	WMo408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,i,c
81349	Palmers Grove, Birmingham	WMo408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c
82140	Trigo Croft, Birmingham	WMo408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c
82239	Blossom Grove, Birmingham	WMo408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c
82276	The Scotchings, Birmingham	WMo408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c
82402	Kilmore Croft, Birmingham	WMo402	63.2	62.9	68.6	82.8	63.8	60.9	62.9	4,A,ii,c
84527	Bromford Gate, A4040Bromford Lane, Erdington, Birmingham	Birmingham Noise Map and WM2907	72.0	68.0	74.2	78.6	58.0	58.0	51.0	6,A,i,c
85195	Concorde Drive, Castle Vale, Birmingham	WM2602	61.1	58.3	65.1	68.0	61.5	60.2	57.8	3,A,ii,b

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			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
85666	Trident Boulevard, Castle Vale, Birmingham	WM0113	53.6	51.5	56.3	59.3	54.1	52.8	51.1	3,A,ii,b
85833	Javelin Avenue, Birmingham	WM0114	58.1	57.7	61.7	63.4	58.5	57.2	57.2	3,A,ii,b
85858	Javelin Avenue, Birmingham	WM0112	60.3	56.5	62.0	69.3	60.7	59.4	56.0	3,A,ii,b
86180	Javelin Avenue, Birmingham	WM0111	59.9	50.9	56.1	65.0	60.3	59.1	50.4	3,A,ii,b
86972	Avery Croft, Birmingham	WM0102	59.5	54.2	59.3	65.9	60.0	58.7	53.7	3,A,ii,b
87502	Wingfoot Way, Erdington, Birmingham	Birmingham Noise Map and WM2907	74.0	69.0	74.2	78.6	74.0	74.0	69.0	6,A,i,c
87609	Fort Dunlop, Fort Parkway, Birmingham	Birmingham Noise Map and WM2907	69.0	64.0	74.2	78.6	69.0	69.0	64.0	6,A,iii,c
87767	Fort Parkway, Birmingham	Birmingham Noise Map and WM2907	71.0	67.0	74.2	78.6	71.0	71.0	67.0	6,A,i,c
90581	Chester Road, Castle Vale, Birmingham	Birmingham Noise Map and WM2907	69.0	64.0	74.2	78.6	69.0	69.0	64.0	6,A,i,c
90845	Fort Parkway, Birmingham	Birmingham Noise Map and WM2907	77.0	72.0	74.2	78.6	77.0	77.0	72.0	6,A,i,c

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
91251	Hawker Drive, Birmingham	WM2601	56.4	56.1	62.2	69.4	56.8	55.5	55.6	3,A,ii,b
91392	Avery Croft, Birmingham	WM0103	61.6	57.6	61.8	62.6	62.0	60.8	57.1	3,A,ii,b
92306	Cadbury Drive, Birmingham	WM0101	61.6	58.8	66.2	76.9	62.0	60.7	58.3	3,A,ii,b
92309	Fort Industrial Park, Chester Road, Castle Vale, Birmingham, B35 7Ar	Birmingham Noise Map and WM2907	71.0	69.0	74.2	78.6	71.0	71.0	69.0	6,A,i,c
92381	Papyrus Way, Birmingham	WM0404	61.5	62.4	68.5	74.0	62.1	59.2	62.4	4,A,ii,c
92394	Papyrus Way, Birmingham	WM0404	61.5	62.4	68.5	74.0	62.1	59.2	62.4	4,A,ii,c
92423	Berrandale Road, Birmingham	WM0408	58.4	57.6	63.4	70.0	59.0	56.1	57.6	4,A,ii,c
92426	The Moors, Birmingham	WM0404	61.5	62.4	68.5	74.0	62.1	59.2	62.4	4,A,ii,c
92477	Castle Bromwich Business Park, Tameside Drive, Castle Vale, Birmingham	Birmingham Noise Map and WM2907	69.0	64.0	74.2	78.6	69.0	69.0	64.0	6,A,i,c
92756	Chillinghome Road, Birmingham	WM0402	63.2	62.9	68.6	82.8	63.8	60.9	62.9	4,A,ii,c
92835	Wanderer Walk, Birmingham	WM0402	63.2	62.9	68.6	82.8	63.8	60.9	62.9	4,A,i,c
92850	Bromford Drive, Birmingham	WM0403	65.0	64.7	68.8	71.6	65.6	62.7	64.7	4,A,ii,c
92871	Hyperion Road, Birmingham	WM0403	65.0	64.7	68.8	71.6	65.6	62.7	64.7	4,A,ii,c
92902	Wanderer Walk, Birmingham	WM0402	63.2	62.9	68.6	82.8	63.8	60.9	62.9	4,A,ii,c

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
92924	Fort Parkway, Birmingham	Birmingham Noise Map and WM2907	72.0	69.0	74.2	78.6	72.0	72.0	69.0	6,A,i,c
93223	Blenheim Way, Castle Vale, Birmingham	WM0115	55.7	52.9	61.3	75.7	56.1	54.8	52.4	3,A,ii,b
93389	Blenheim Way, Castle Vale, Birmingham	WM9701	62.7	60.0	66.5	87.8	63.2	61.9	59.5	1,A,ii,a
93426	Lancaster Drive, Birmingham	WM0116	58.6	55.8	65.1	73.9	59.1	57.8	55.3	3,A,ii,b
93431	Wellington Way, Birmingham	WM0115	55.7	52.9	61.3	75.7	56.1	54.8	52.4	3,A,ii,b
93473	Spitfire Way, Castle Vale, Birmingham	WM9701	62.7	60.0	66.5	87.8	63.2	61.9	59.5	1,A,ii,a
93498	Spitfire Way, Castle Vale, Birmingham	WM9701	62.7	60.0	66.5	87.8	63.2	61.9	59.5	1,A,ii,a
93521	Blenheim Way, Castle Vale, Birmingham	WM0110	58.8	55.3	62.8	79.0	59.2	57.9	54.8	3,A,ii,b
93841	Farnborough Road, Birmingham	WM2603	62.5	59.4	67.4	71.1	62.9	61.7	58.9	3,A,i,b
93954	Drem Croft, Birmingham	WM2603	62.5	59.4	67.4	71.1	62.9	61.7	58.9	3,A,ii,b
93975	Cadbury Drive, Birmingham	WM0105 and WM0107	61.0	57.0	64.0	72.5	61.4	60.2	56.5	3,A,i,b
94017	Kenrick Croft, Birmingham	WM0102	59.5	54.2	59.3	65.9	60.0	58.7	53.7	3,A,ii,b
94167	Clayton Walk, Birmingham	WM0105 and WM0107	61.0	57.0	64.0	72.5	61.4	60.2	56.5	3,A,ii,b
94183	Beale Close, Birmingham	WM0104 and	65.1	53.1	58.0	64.3	65.6	64.3	52.7	3,A,ii,b

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
		WM0106								
94195	Beale Close, Birmingham	WM0104 and WM0106	65.1	53.1	58.0	64.3	65.6	64.3	52.7	3,A,ii,b
94261	Cadbury Drive, Birmingham	WM0107	60.8	57.0	64.0	72.5	61.2	59.9	56.5	3,A,ii,b
94303	Jackson Walk, Birmingham	WM0106	56.0	53.1	58.0	64.3	56.5	55.2	52.7	3,A,ii,b
94450	Howes Croft, Birmingham	WM0108	59.0	53.0	64.6	72.3	59.5	58.2	52.5	3,A,ii,b
94486	Jackson Walk, Birmingham	WM0107	60.8	57.0	64.0	72.5	61.2	59.9	56.5	3,A,i,b
94499	Howes Croft, Birmingham	WM0106	56.0	53.1	58.0	64.3	56.5	55.2	52.7	3,A,ii,b
94507	Howes Croft, Birmingham	WM0107	60.8	57.0	64.0	72.5	61.2	59.9	56.5	3,A,ii,b
94528	Cadbury Drive, Birmingham	WM0109	62.3	57.6	68.8	74.1	62.7	61.5	57.1	3,A,ii,b
94813	Cadbury Drive, Birmingham	WM0108	59.0	53.0	64.6	72.3	59.5	58.2	52.5	3,A,ii,b
94822	Spitfire Way, Castle Vale, Birmingham	WM9701	62.7	60.0	66.5	87.8	63.2	61.9	59.5	1,A,ii,a
95386	Kingsleigh Drive, Birmingham	WM2502	58.1	53.8	57.8	62.4	58.5	57.2	53.3	3,A,ii,b
95488	Tameside Drive, Castle Vale, Birmingham	WM2503	70.2	63.4	71.0	74.5	70.7	69.4	62.9	3,A,i,b
95567	Langley Drive, Birmingham	WM2503	70.2	63.4	71.0	74.5	70.7	69.4	62.9	3,A,ii,b
95601	Kingsleigh Drive, Birmingham	WM2501	57.1	52.1	54.1	54.8	57.5	56.2	51.6	3,A,ii,b

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
95800	Farnborough Road, Birmingham	WM2604	60.3	55.2	63.6	70.3	60.7	59.4	54.7	3,A,ii,b
96062	Farnborough Road, Birmingham	WM2605	59.1	56.3	65.8	67.7	59.5	58.2	55.8	3,A,ii,b
97412	Dunlop Way, Chester Road, Castle Vale, Birmingham	Birmingham Noise Map and WM2907	71.0	69.0	74.2	78.6	71.0	71.0	69.0	6,A,i,c
97695	Hurricane Way, Birmingham	WM2602	61.1	58.3	65.1	68.0	61.5	60.2	57.8	3,A,ii,b
121071	Clopton Crescent, Birmingham	WM2309	62.9	51.7	64.4	66.2	66.8	59.9	51.7	2,A,i,b
131548	Farnborough Road, Birmingham	WM2606	57.3	54.5	65.4	69.6	57.7	56.4	54.0	3,A,ii,b
132532	Lanchester Way, Birmingham	WM2403 and WM2402	62.5	58.3	64.8	66.0	65.6	63.9	59.9	1,A,i,a
132672	Lanchester Way, Birmingham	WM0303	61.4	53.9	63.1	67.1	62.0	57.9	53.9	4,A,ii,c
132691	Sutton New Hall	WM2606	57.3	54.5	65.4	69.6	57.7	56.4	54.0	3,A,iii,c
132963	Park View, Castle Bromwich, Birmingham	WM0303	61.4	53.9	63.1	67.1	62.0	57.9	53.9	4,A,ii,c
133047	Bentley Court, Castle Bromwich, Birmingham	WM0303	61.4	53.9	63.1	67.1	62.0	57.9	53.9	4,A,ii,c
133103	Blewitt Close, Birmingham	WM2402	60.8	58.3	64.8	66.0	63.9	62.2	59.9	2,A,ii,b
133144	Pikehorne Croft, Birmingham	WM2402	60.8	58.3	64.8	66.0	63.9	62.2	59.9	2,A,ii,b
133224	Chadshunt Close, Birmingham	WM2403 and WM2401	62.5	49.3	59.7	93.4	65.6	63.9	50.9	Day 2,A,ii,b; Night

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
										1,A,ii,a
133321	Castello Drive, Birmingham	WM2402	60.8	58.3	64.8	66.0	63.9	62.2	59.9	2,A,ii,b
133335	Blewitt Close, Birmingham	WM2402	60.8	58.3	64.8	66.0	63.9	62.2	59.9	2,A,ii,b
133399	Tackford Close, Birmingham	WM2406	53.1	49.9	53.5	61.5	56.2	54.5	51.5	2,A,ii,b
133485	Aspbury Croft, Birmingham	WM2402	60.8	58.3	64.8	66.0	63.9	62.2	59.9	2,A,ii,b
133823	Castello Drive, Birmingham	WM2406	53.1	49.9	53.5	61.5	56.2	54.5	51.5	2,A,ii,b
133912	Parkfield Drive, Birmingham	WM2404	62.1	46.8	59.6	63.1	65.2	63.4	48.4	2,A,ii,b
134409	Parkfield Drive, Birmingham	WM2404	62.1	46.8	59.6	63.1	65.2	63.4	48.4	2,A,ii,b
134691	Faircroft Road, Birmingham	WM2404	62.1	46.8	59.6	63.1	65.2	63.4	48.4	2,A,ii,b
135106	Watchbury Close, Birmingham	WM2407	58.2	60.2	61.6	63.0	61.3	59.6	61.8	2,A,ii,b
135208	Watchbury Close, Birmingham	WM2407	58.2	60.2	61.6	63.0	61.3	59.6	61.8	2,A,ii,b
135257	Musborough Close, Birmingham	WM2406	53.1	49.9	53.5	61.5	56.2	54.5	51.5	2,A,ii,b
135276	Musborough Close, Birmingham	WM2407	58.2	60.2	61.6	63.0	61.3	59.6	61.8	2,A,ii,b
135509	Flecknoe Close, Birmingham	WM2407	58.2	60.2	61.6	63.0	61.3	59.6	61.8	2,A,ii,b
135599	Crawshaws Road, Birmingham	WM2407	58.2	60.2	61.6	63.0	61.3	59.6	61.8	2,A,i,b
136729	Milesbush Avenue, Birmingham	WM2401	52.1	49.3	59.7	93.4	55.2	53.5	50.9	1,A,ii,a

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Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁴
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq}	Evening / Weekend L _{pAeq}	Night-time L _{pAeq}	
139350	Water Orton Road, Birmingham	WM2405	51.5	47.2	56.1	62.1	54.5	52.8	48.8	2,A,ii,b
139360	Milesbush Avenue, Birmingham	WM2405	51.5	47.2	56.1	62.1	54.5	52.8	48.8	2,A,i,b
700520	Bromford Drive, Birmingham	WM0509	61.8	56.8	61.6	63.7	62.4	59.5	56.8	4,A,ii,c
700521	Thamside Drive, Birmingham	WM2503	70.2	63.4	71.0	74.5	70.7	69.4	62.9	3,A,ii,b
700522	Berwood Court, Castle Vale, Birmingham	WM9701	62.7	60.0	66.5	87.8	63.2	61.9	59.5	1,A,ii,a
700523	Kingsleigh Drive, Birmingham	WM2502	58.1	53.8	57.8	62.4	58.5	57.2	53.3	3,A,ii,b
700524	Danzey Green Road, Birmingham	WM2502	58.1	53.8	57.8	62.4	58.5	57.2	53.3	3,A,ii,b
700525	Danzey Green Road, Birmingham	WM2407	58.2	60.2	61.6	63.0	61.3	59.6	61.8	2,A,ii,b

Table 2: Data source coding key

Code	Data source type
1	Long-term measurement location
2	Short-term (linked to simultaneous long-term)
3	Short-term (using profile from non-simultaneous long-term)
4	Short-term using standard (National Noise Incidence Study ⁵ or other) 24hr profile
5	Specific validated prediction
6	Predictions from other sources (Defra noise maps ⁶ , etc.).
7	Generic levels

Code	Corrections applied
A	Data from above source applied directly
B	Correction applied for screening
C	Correction applied for distance from source
D	Minimum level cut-off applied.

Code	Distance from measurement
I	Data applied from a measurement at or very close to the assessment location.
li	Data applied from a local measurement location at a greater distance but noted to have equivalent acoustic climate.
lii	Data applied from a distant measurement location where sound levels would be expected to be similar.

Code	Uncertainty
A	Data are considered highly representative of the prevailing sound climate
B	Data are considered representative of the prevailing sound climate, but variations in measured levels indicate that there may be a higher degree of uncertainty than for (a).
C	Data are considered to be an estimate of the sound climate, (e.g. taken from Defra noise maps, etc.).

3.3 Future baseline methodology

Construction

- 3.3.1 The assessment of noise from construction activities assumes a baseline year of 2017. As a conservative assumption, it has been assumed that no change in baseline sound

⁵ Building Research Establishment (BRE) (2002). *National Noise Incidence Study, 2000/2001*. BRE.

⁶ Department for Environment, Food and Rural Affairs (Defra) (2013). *Noise Mapping England* [Online]. Available at: <http://services.defra.gov.uk/wps/portal/noise> [Accessed: 26 July 2013].

levels will occur between the existing baseline (2012/13) and the future baseline year of 2017.

- 3.3.2 Due to the duration of the construction work and as the precise timing of the highest sound levels would be different in each location, using baseline sound levels for 2017 as the start of the construction period, provides a reasonable worst case assessment.
- 3.3.3 The assessment of construction traffic is based on future baseline traffic flows for 2021, as a year representative of the middle of the construction period.

Operation

- 3.3.4 Changes in existing sound sources between 2012/2013 and 2026 may result in changes to baseline sound levels.
- 3.3.5 For major transportation sources, data for existing and future baseline operations have been reviewed. Where changes may occur between the existing baseline and future baseline (2026) situations, expected changes in baseline sound level have been derived. For example, expected changes in traffic flow, composition and speed have been used to calculate changes in sound emission from roads using the methodology from the Calculation of Road Traffic Noise⁷.
- 3.3.6 The changes to major sound sources which have been identified in this area are summarised in Table 3.

Table 3: 2026 future baseline changes in sound sources

Sound Source affected	Cause of change in levels	Change in sound levels (existing baseline to 2026 future baseline) (dB)	
		Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$
A38 Kingsbury Road/Tyburn Road throughout Castle Bromwich and Bromford areas	Increased traffic flow	+1.1	+1.1
M6 throughout Castle Bromwich and Bromford areas	Increased traffic flow	+1.1	+1.1
A47 Fort Parkway throughout Castle Bromwich and Bromford areas	Increased traffic flow	+1.1	+1.1
B4118 (Birmingham, Castle Bromwich)	Increased traffic flow	+1.1	+1.1
Bromford Drive, Bromford	Increased traffic flow	+1.1	+1.1
Chipperfield Drive, Bromford	Increased traffic flow	+1.1	+1.1
Bromford Road, Bromford	Increased traffic flow	+1.1	+1.1

⁷ Department of Transport (DfT) (1988). *Calculation of Road Traffic Noise*. DfT.

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Sound Source affected	Cause of change in levels	Change in sound levels (existing baseline to 2026 future baseline) (dB)	
		Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}
A4040 Bromford Lane, Bromford	Increased traffic flow	+1.1	+1.1
Tameside Drive, Castle Bromwich	Increased traffic flow	+1.3	+1.3
Farnborough Road, Castle Vale	Increased traffic flow	+1.1	+1.1
Tangmere Drive, Castle Vale	Increased traffic flow	+1.1	+1.1

4 References

Birmingham City Council (BCC) (2005). *Birmingham Noise Map*. BCC.

Building Research Establishment (BRE) (2002). *National Noise Incidence Study, 2000/2001*. BRE.

Department for Environment, Food and Rural Affairs (Defra) (2013). *Noise Mapping England* [Online]. Available at: <http://services.defra.gov.uk/wps/portal/noise> [Accessed: 26 July 2013].

Department of Transport (DfT) (1988). *Calculation of Road Traffic Noise*. DfT.